Cold Climate Housing Research Center

CCHRC

Hybrid Micro Energy Program
Award No. 01163
Quarterly Report: October 1, 2011 to December 31, 2011

Per the terms of the Hybrid Micro-Energy Program (HMEP) grant agreement, the three priority renewable energy systems to be evaluated are:

A small scale biomass combined heat and power (CHP) system that can convert wood into heat and power for use in small scale loads including residences, small community facilities, and potentially small communities and/or neighborhoods.

CCHRC has used a variety of methods over several years to search for, identify, and procure a small-scale biomass CHP unit that shows promise of meeting the practical and economic demands of rural Alaska. During the 4th quarter of 2011, CCHRC prepared a report documenting current CHP technology, our observations and experience from our search for a small-scale biomass CHP, and potential suitability for use in Alaska. The report will go out for internal and external review in January and February 2012, and be presented to the Denali Commission and others in the first quarter 2012.

A ground source heat pump project that includes solar thermal collection to recharge the ground

During the 4th quarter of 2011 CCHRC's monitoring on the heat pump revealed problems with the system. The North Star Borough School District investigated and determined that the compressor in the heat pump was not functioning. Further study of the system by our contractor partner, Andy Roe, revealed corrections that the school district should make in the control of the heat pump. The school district has the parts and will fix the system in January 2012. Data collection systems are in place and operating awaiting the operation of the GSHP system.

A combined solar photovoltaic (PV) and wind system integrated into an energy efficient load design.

The Denali Commission funding was being utilized to monitor and report the performance of a combined solar photovoltaic (PV) and wind system installed at the Anaktuvuk Pass house. The power systems were funded by the Yukon River Inter-Tribal Watershed Council (YRITWC), who is also a partner in the overall evaluation of the alternative energy systems. GW Scientific and Campbell Scientific provided in-kind matching support. Remote Power Inc. has also been providing valuable in-kind matching technical support related to the wind and solar power systems. During the 4th quarter CCHRC finished collecting information on the system from all of the project partners in order to compile a final report. Additionally, CCHRC completed collecting data on the combined systems in Anaktuvuk Pass. The final report on the project including lessons learned in now in progress.